LAB 2

8086 programming

SYST19207

**Instructions:**

Complete the following questions. You may use class slides, the course textbook, or our supplementary online textbook. Worth 5% of your grade.

Written part: 5 marks

Two programming part 5x2 = 10 marks

Total 15 marks

**A. Example Program**

Enter and run the example program in the Module 7 slides entitled “Emu8086 Library Example”. Answer the questions below.

1. Which procedures does the example program use? List all names.

The program uses the procedures:  
SCAN\_NUM, PRINT\_NUM, PRINT\_NUM\_UNS (the last one is only used for negatives)

1. Which macros does the example program use? List all names.

PRINTN

1. Explain how the program passes parameter(s) to PRINTN.

Values are stored in AX one at a time until they are retrieved by the macro to be printed on the screen.

1. W Explain how the program passes parameter(s) to PRINT\_NUM.

The parameters that PRINT\_NUM are whatever parameters have been stored in AX and DX registers

1. Write a program that uses the GET\_STRING procedure to input a string. This procedure stores a null-terminated string in a buffer provided by the caller. Your program should use a loop to calculate the actual length of the string in bytes, then print out the length using the PRINT\_NUM procedure. Here is what the output from your program might look like:

Enter a string

hey

String entered is

hey

String length is

3

Note: The example program **get\_string example.asm** in SLATE may be helpful.

6. Write an assembler program that inputs a string and the string can contain a combination of upper and lower case letters and the output will be the string in reverse case.

Input: Hello World!

Output: hELLO wORLD!

Hint: See the “Larger Selection Example” slides from the slide set “80x86 Branching, Interrupts, and Stack” for the flow chart and selection logic